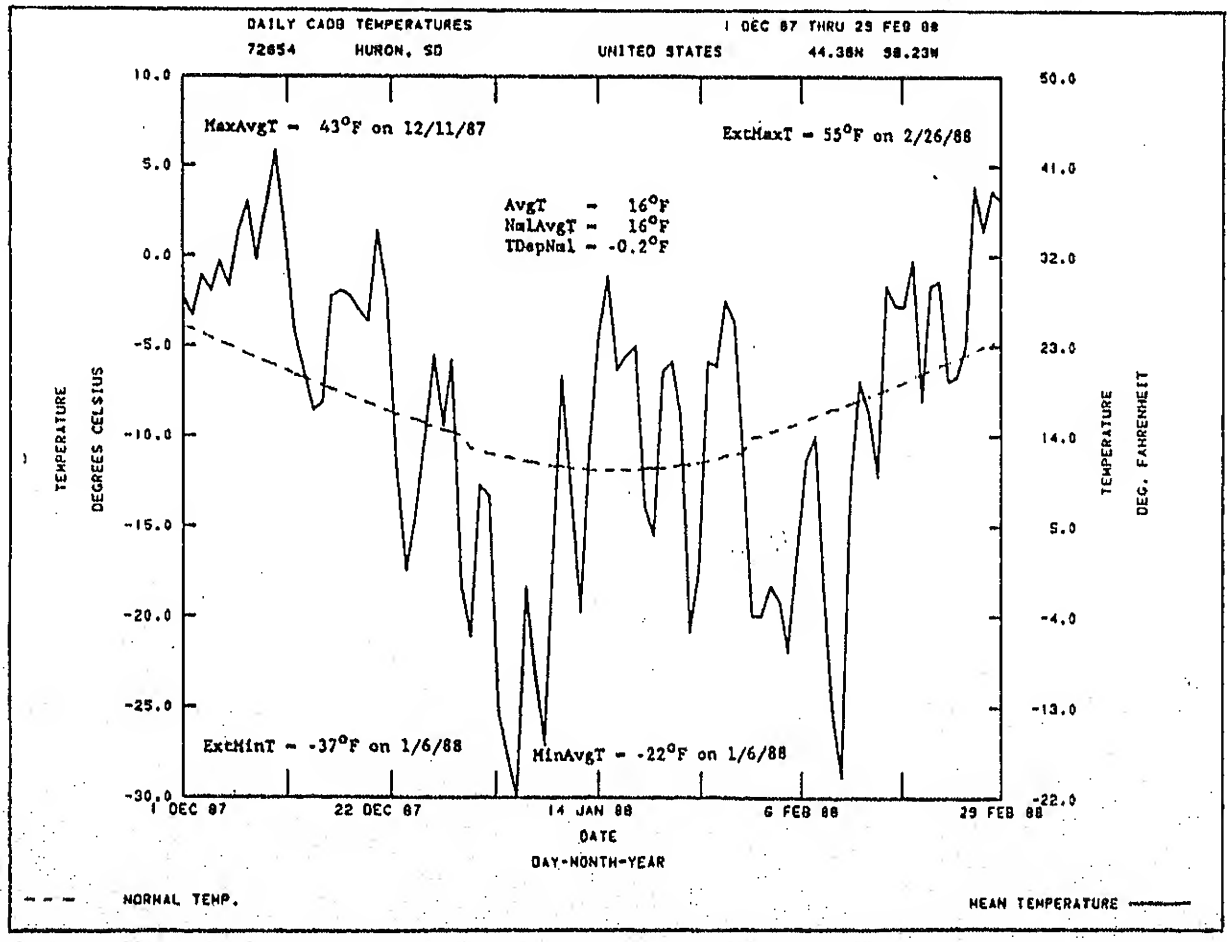
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 88/11 Washington, DC March 12, 1988



EVEN THOUGH THIS WINTER'S (12/87-2/88) TEMPERATURES AVERAGED "NEAR NORMAL" FOR HURON, SD AND FOR SEVERAL OTHER LOCATIONS IN THE AREA, DAILY AVERAGE TEMPERATURE DEPARTURES WERE HIGHLY VARIABLE AS SHOWN ABOVE.

NOAA - NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

Highlights of major global climatic events and anomalies.
U.S. climatic conditions for the previous week.
U.S. apparent temperatures (summer) or wind chill (winter).
Global two-week temperature anomalies.
Global four-week precipitation anomalies.
Global monthly temperature and precipitation anomalies.
Global three-month precipitation anomalies (once a month).
Global twelve-month precipitation anomalies (every 3 months).
Global temperature anomalies for winter and summer seasons.
Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

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GLOBAL HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF MARCH 12, 1988
(Approximate duration of anomalies is in brackets.)

1. WESTERN UNITED STATES AND SOUTHWESTERN CANADA: UNUSUAL DRYNESS PERSISTS.
Relatively light precipitation occurred at most stations in the western United States and adjacent parts of Canada; however, moderate amounts were reported at some coastal and mountain stations [8 weeks].

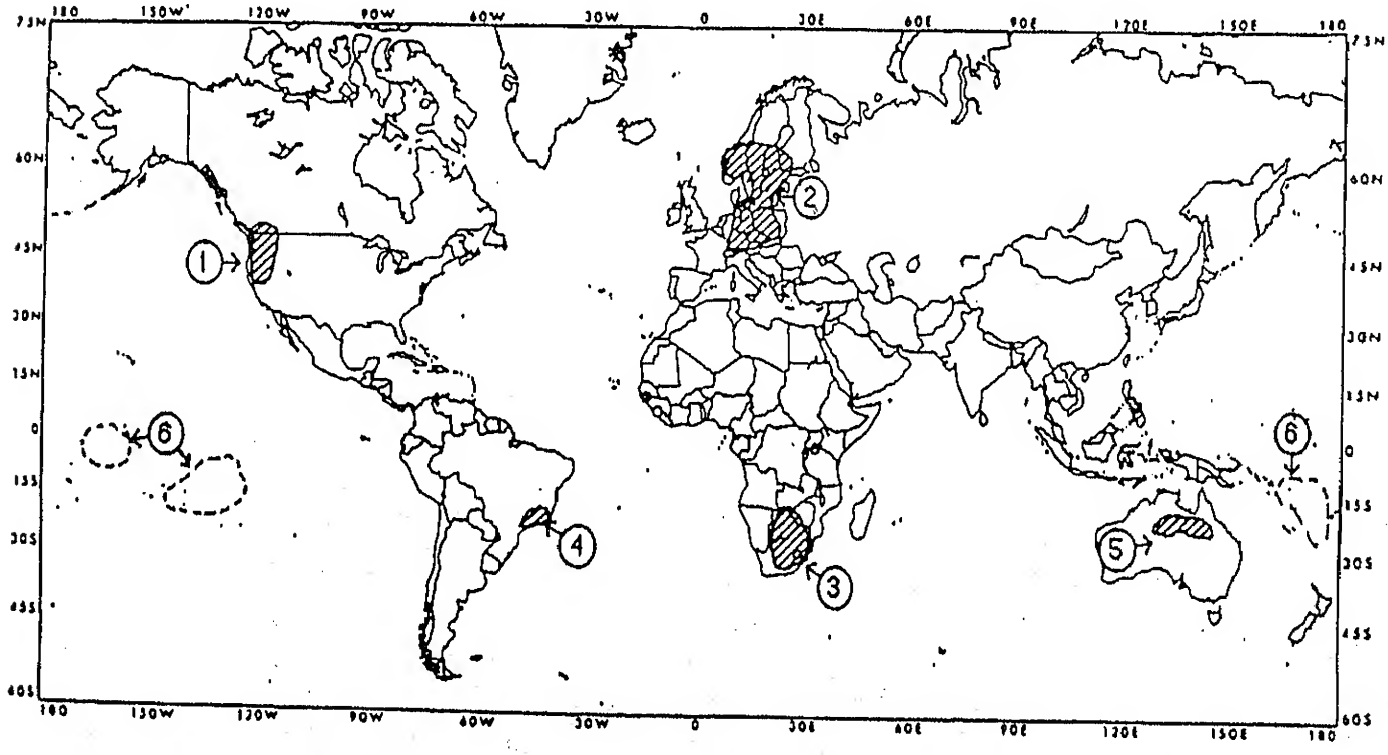
2. NORTHERN EUROPE: UNUSUALLY WET CONDITIONS CONTINUE.
Heavy precipitation, as much as 149.4 mm (5.88 inches) in Switzerland, was measured across most of southern Scandinavia and central Europe [8 weeks].

3. ZIMBABWE, BOTSWANA, AND NORTHERN SOUTH AFRICA: AREA RECEIVES MORE HEAVY RAIN.
Unusually heavy thunderstorms continued with some stations recording up to 218.3 mm (8.59 inches) of rain [4 weeks].

4. BRAZIL: RIO DE JANEIRO AREA RAINS EASE.
Light to moderate showers, up to 30.3 mm (1.19 inches), were observed in the vicinity of Rio de Janeiro as unusually wet conditions diminished [Ending at 4 weeks].

5. NORTH CENTRAL AUSTRALIA: REGION REMAINS WARM AND DRY.
Little or no rain, generally less than 39.2 mm (1.54 inch), occurred in the interior of north central Australia. The dryness was aggravated by unusually hot conditions with temperatures up to 4.5°C (8.1°F) above normal [6 weeks].

6. CENTRAL AND EASTERN TROPICAL PACIFIC: REFER TO SPECIAL SUMMARY ON EL NINO/SOUTHERN OSCILLATION (ENSO).
A monthly update, covering February 1988, is attached.



Approximate locations of the major anomalies and events described above are shown on this map. See the other world maps in this Bulletin for current two-week temperature anomalies, four-week precipitation anomalies, and (occasionally) longer-term anomalies.

U.S. WEEKLY WEATHER HIGHLIGHTS

FOR THE WEEK OF MARCH 6 THROUGH MARCH 12, 1988

Scattered showers and thunderstorms brought heavy precipitation to parts of the Southeast (see Table 1). According to the River Forecast Center, largest amounts were located in central North Carolina (2.1 in), central Georgia (2.3 in), eastern South Carolina (2.5 in), western Mississippi (2.7 in), southern Arkansas (2.7 in), northern Florida (3.7 in), eastern Tennessee (3.9 in), and southern Louisiana (4.0 in). The northern Cascades also received between 2.2 to 3.9 inches of precipitation. Late in the week, a storm system intensified in the northern Great Plains and dumped over a foot of snow on some locations in the area (see Figure 1). High winds further aggravated the situation with blowing and drifting snow. Elsewhere, light to moderate amounts of precipitation were found along the Pacific Northwest coast, across the northern halves of the Rockies and Great Plains, throughout much of the Southeast and Midwest, and in the western sections of the mid-Atlantic and New England regions. Little or no precipitation fell in the Pacific Northwest interior, the Southwest and Great Basin, the southern halves of the Rockies and Great Plains, southern Iowa and western Missouri, the Hawaiian Islands, and along much of the mid-Atlantic and New England coasts.

Last week's temperatures were indicative of spring as departures averaged well above normal for much of the country east of the Rockies. Largest departures (between +10 to +14°F) were common in the Dakotas, Minnesota, Wisconsin, Iowa, and Michigan (see Table 2). Maximum temperatures surpassed 60°F for the second consecutive week in the northern Great Plains and southern Alberta (see Figure 2). Late in the week, however, colder air plunged southward over the north-central U.S. in association with the low pressure system previously mentioned. Alaska continued to experience unusually mild weather as weekly maximum departures reached +24°F. Slightly below normal temperatures occurred from Oregon southeastward through New Mexico, in northern Florida, and northern Maine.

TABLE 1. Selected cities with two or more inches of precipitation for the week.

Yakutat, AK	5.97	Lake Charles, LA	2.76
Ketchikan, AK	4.02	Mt. Washington, NH	2.50
Kodiak, AK	4.01	Daytona Beach, FL	2.33
Homer, AK	3.53	Florence, SC	2.21
Annette Island, AK	3.31	Cape Canaveral, FL	2.20
Cordova, AK	3.00	Monroe, LA	2.16
Gainesville, FL	2.96	New Bern, NC	2.01
Valdez, AK	2.87	Knoxville, TN	2.01
Sitka, AK	2.81	Wilmington, NC	2.00

TABLE 2. Selected cities with temperatures averaging higher than 11°F above normal for the week.

Fairbanks, AK	+24	Jamestown, ND	+14
Big Delta, AK	+22	Anchorage, AK	+13
Barter Island, AK	+21	Grand Forks, ND	+13
Bettles, AK	+21	Alexandria, MN	+13
McGrath, AK	+21	Minneapolis, MN	+13
Talkeetna, AK	+16	St. Cloud, MN	+13
Northway, AK	+15	Eau Claire, WI	+13
Gulkana, AK	+14	Watertown, SD	+12
Kenai, AK	+14	Mason City, IA	+12
Warroad, MN	+14	Fargo, ND	+12

U.S. WEEKLY WEATHER HIGHLIGHTS

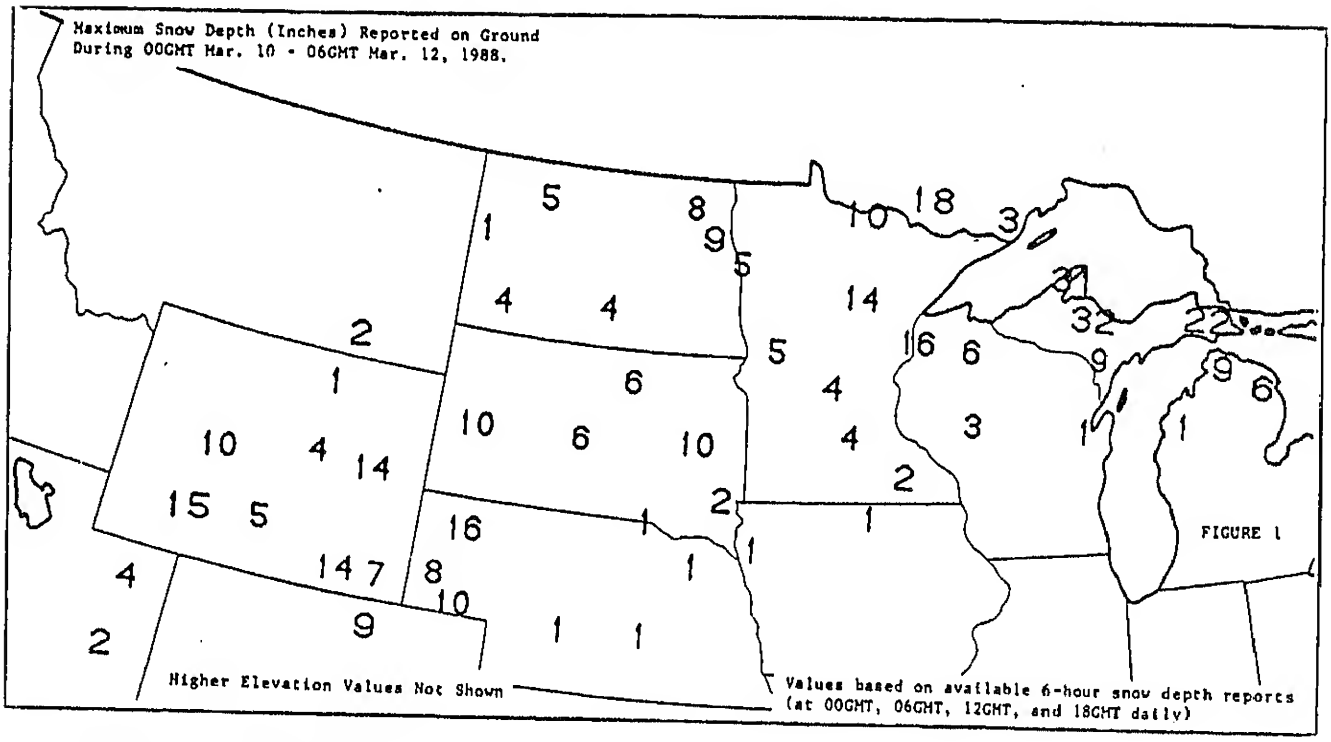
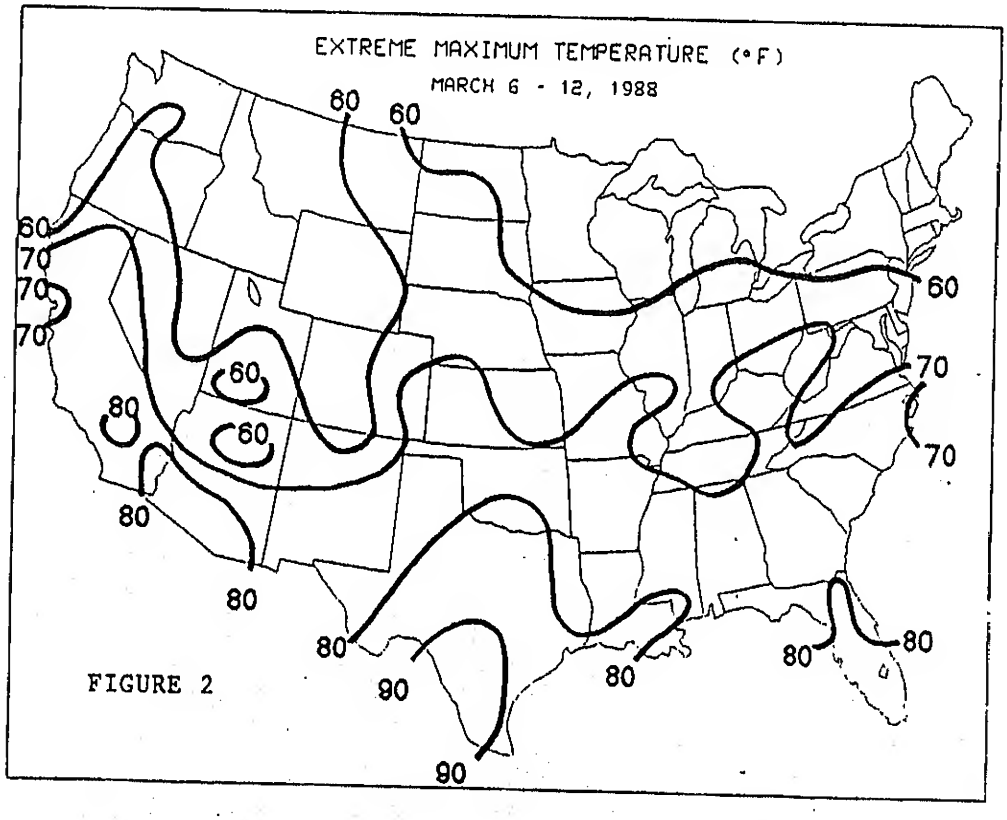
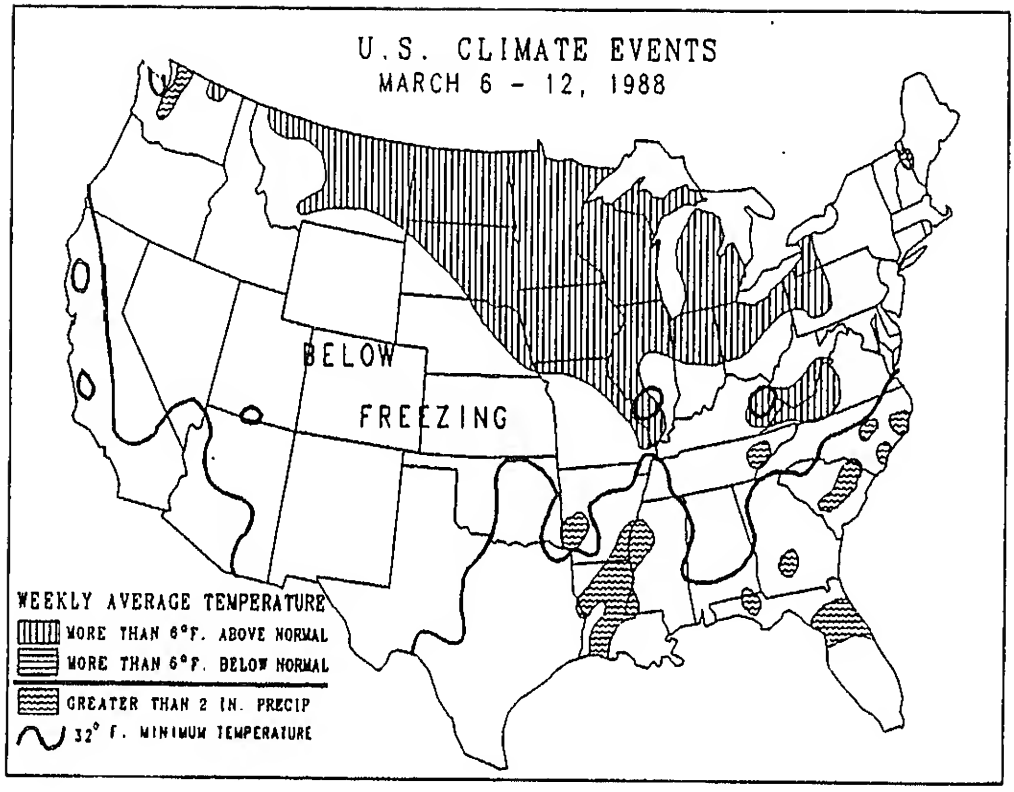
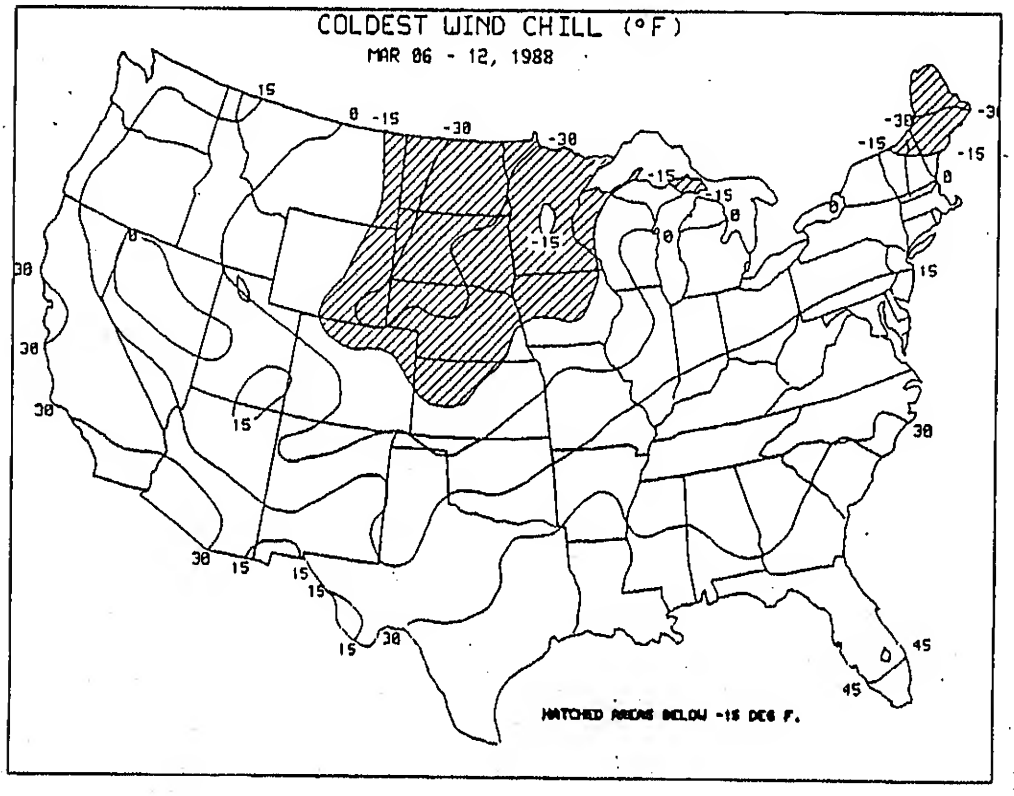


Figure 1 approximates the region of heavy snow during the storm's history. Most locations had little or no snow cover prior to the storm. Some locations south of Lake Superior had previous snow cover but received significant amounts from the storm.



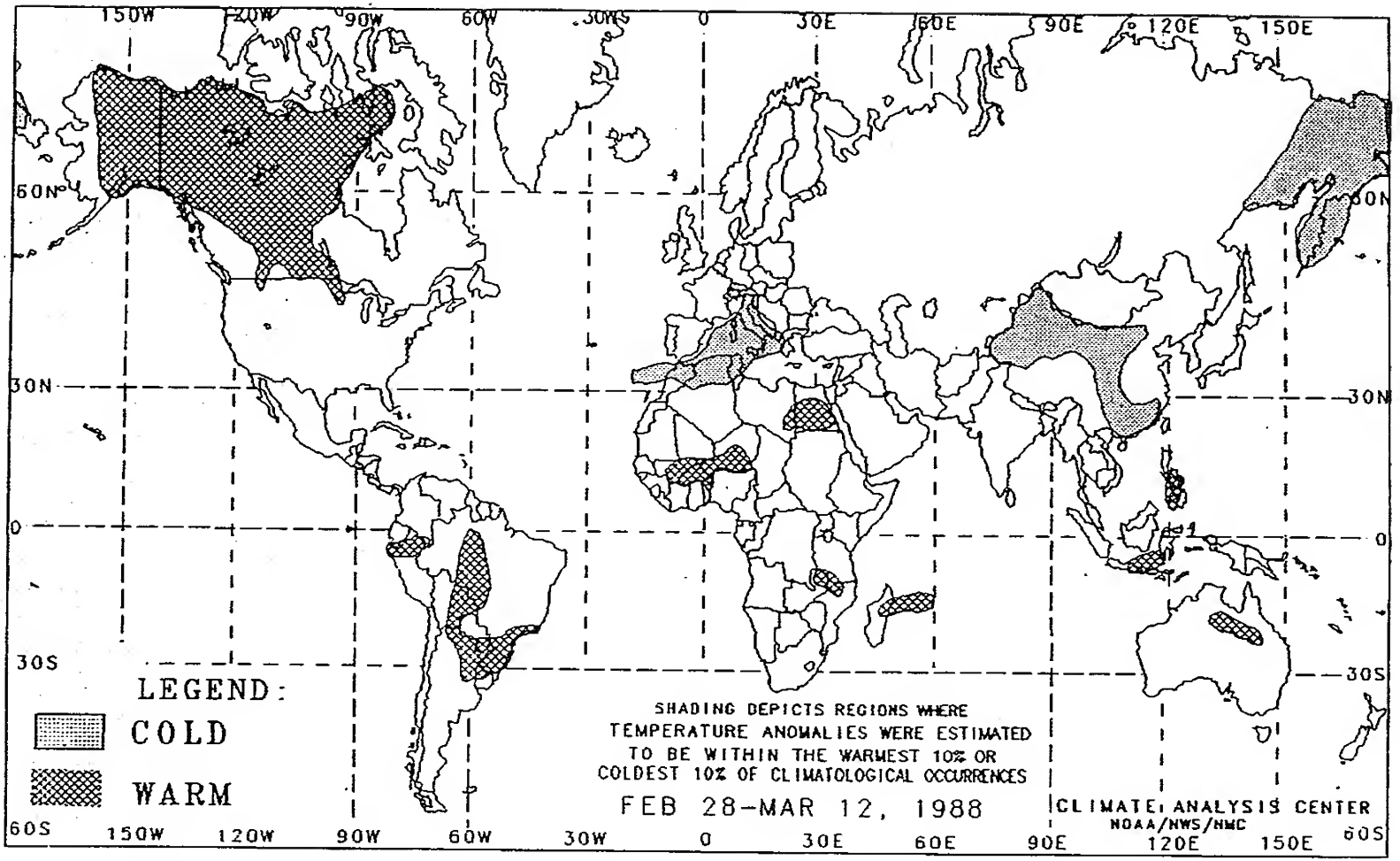




Temperatures dropped as cold air invaded the north central United States. Wind chills below -30°F were observed in northern Maine and in Minnesota, Nebraska, Wyoming, and the Dakotas.

GLOBAL TEMPERATURE ANOMALIES

2 Week



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

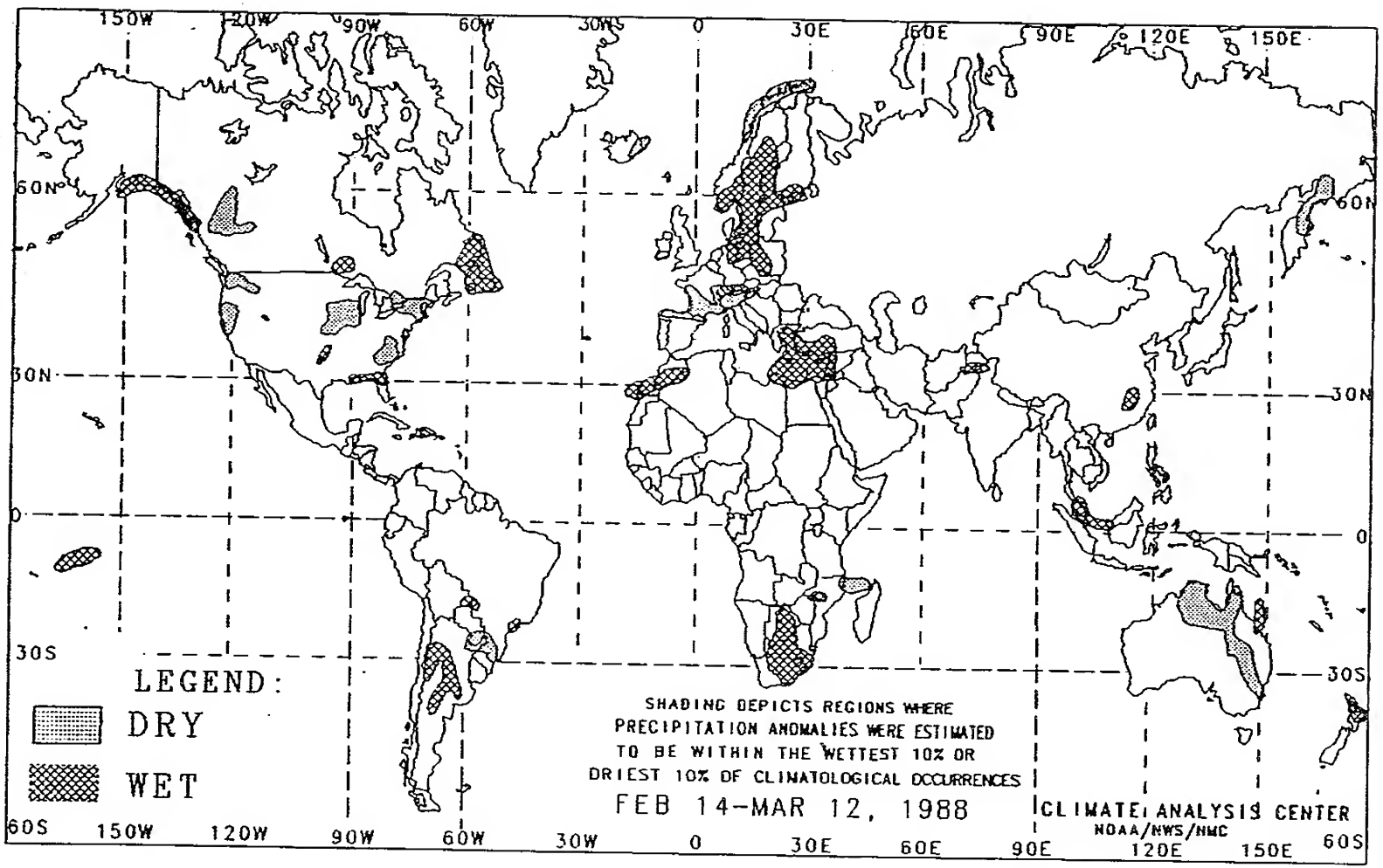
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 Week



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

UNITED STATES SEASONAL CLIMATE SUMMARY
WINTER (DECEMBER, 1987 - FEBRUARY, 1988)

The eastern and western third of the country generally measured below normal precipitation, while much of the central U.S. and Hawaii experienced unusually wet conditions. Winter temperatures averaged near normal (departures within 2°F above or below normal) throughout most of the contiguous United States and Hawaii. The exceptions to this included unseasonably mild weather across the northern Great Plains, western New England, parts of Arizona and California, and Alaska, while abnormally cold conditions were prevalent in the central Rockies, western Texas, and scattered areas of the Southeast.

The largest seasonal temperature departures above normal were concentrated in northern Montana and North Dakota (up to +5.2°F), while central Arizona, central California, northern New York, and the northern Great Plains reported departures between +2 to +4°F (see Figures 1 and 2). In addition, maximum temperatures exceeded 60°F in the northern Great Plains more than once this Winter (see Figure 3). Unseasonably mild conditions dominated Alaska during the entire three months as represented by a daily time series plot for Fairbanks, AK (see Figure 4). Other stations throughout the state recorded similar departures (see Table 1).

After a relatively balmy December, much of the eastern two-thirds of the nation weathered several bitterly cold Arctic outbreaks in early and late January and early February. Greatest departures below normal in January were located in southern Colorado (less than -8°F) and northern Florida (less than -6°F), while the same areas and much of the Midwest observed departures in February as low as -4°F (see Table 2). Even though the northern Great Plains and upper Midwest averaged above normal for the season, minimum temperatures dropped below -20°F on several occasions (see Weekly Climate Bulletins dated 1/9, 2/6, 2/13, and Figure 5). Similarly, unusually mild conditions prevailed along the Pacific Coast this Winter, but sub-freezing temperatures chilled the region during the second half of December.

Precipitation deficiencies continued to afflict the north-central and northwestern U.S. (see Figures 6 and 7). After reporting below normal amounts last Autumn, both areas received approximately three-quarters of their normal winter precipitation. Some locations in the Pacific Northwest, most notably western Washington, northwestern Oregon, and central California, recorded only 50-70% during their normally wettest period of the year (see Figure 8 and Table 3). Deficits would have been larger if it had not been for an unusually wet December throughout much of the West. Across the northern Great Plains and upper Midwest, less than half of normal seasonal precipitation fell along the U.S.-Canadian border and in northern Minnesota. However, normal winter amounts are generally under three inches. Abnormally dry weather plagued southern Texas as amounts were only 28-44% of normal. Further east, most of the Southeast, mid-Atlantic, and New England regions suffered slight to moderate precipitation deficiencies. Greatest below normal percentages were located in central Mississippi, northern Alabama, central Florida, the Carolina and Virginia Piedmonts, and the northern Appalachians. Heavy thunderstorms in February erased December and January deficits along the Gulf Coast.

Much of the central U.S. received surplus precipitation this Winter (see Table 4). The majority of it fell during December as torrential thunderstorms flooded sections of Arkansas and Tennessee and heavy snows blanketed the northern portions of the region. Over sixteen inches of precipitation fell on Memphis, TN during December. Further west, several storms battered sections of northern California and western Oregon in December. Monthly maximum totals ranged from 20.4 inches at North Bend, OR up to 34.7 inches in the Sierra Nevada Mountains. Heavy showers inundated Hawaii as Honolulu received over 500% of their normal December total. Severe February thunderstorms dropped copious amounts of rain (up to 17.4 inches in southern Louisiana) along the Gulf Coast, according to the River Forecast Center. In Alaska, Pacific storms entered the continent further north than usual and brought above normal seasonal precipitation to the southeastern part of the state.

Table 1. Seasonal average temperature departures of more than +4.5°F.

Station	Avg T	Dep Nml	Station	Avg T	Dep Nml
Big Delta, AK	5	+8.1	Cut Bank, MT	24	+5.2
King Salmon, AK	20	+7.2	Havre, MT	23	+5.2
Aniak, AK	9	+7.0	Sitka, AK	37	+5.0
Valdez, AK	27	+7.0	Minot, ND	17	+5.0
Fairbanks, AK	-2	+7.0	Unalakleet, AK	7	+4.9
Iliamna, AK	22	+6.8	Anchorage, AK	20	+4.9
Barter Island, AK	-10	+5.9	Homer, AK	28	+4.9
Gulkana, AK	2	+5.9	Bettles, AK	-3	+4.7
Juneau, AK	32	+5.9	Talkeetna, AK	16	+4.7
Kotzebue, AK	2	+5.8	Worland, WY	23	+4.7
Kenai, AK	18	+5.6	Jamestown, ND	15	+4.7

Table 2. Seasonal average temperature departures of -2.0°F or less.

Station	Avg T	Dep Nml	Station	Avg T	Dep Nml
Alamosa, CO	13	-6.5	Colorado Springs, CO	28	-2.7
Pueblo, CO	27	-5.2	Denver, CO	29	-2.7
Grand Junction, CO	25	-4.3	Cedar City, UT	29	-2.5
Gainesville, FL	54	-4.3	Dalhart, TX	33	-2.5
Elkhart, KS	33	-4.0	Jacksonville, FL	53	-2.3
La Junta, CO	28	-3.8	San Angelo, TX	45	-2.3
Cheyenne, WY	25	-3.4	Midland, TX	43	-2.3
Jonesboro, AR	38	-3.4	Junction, TX	47	-2.3
Laramie, WY	19	-3.4	Tallahassee, FL	51	-2.2
Ft. Sill, OK	39	-2.9	El Paso, TX	44	-2.2
Amarillo, TX	35	-2.9	Abilene, TX	44	-2.0
Scottsbluff, NE	24	-2.9	Akron, CO	26	-2.0

Table 3. Selected stations that were abnormally dry during Winter 1987-1988 (Normal precipitation more than 11 inches AND percent of normal precipitation less than 75%).

Station	Amt(in)	%Nml	Nml(in)	Station	Amt(in)	%Nml	Nml(in)
Portland, ME	7.32	62.0	11.81	Birmingham, AL	10.63	71.7	14.83
Columbia, SC	7.62	64.2	11.87	Anniston, AL	10.71	70.6	15.17
Bellingham, WA	8.19	60.9	13.44	Seattle/Tacoma, WA	10.92	66.0	16.54
Boston, MA	8.55	70.6	12.10	Tuscaloosa, AL	10.96	73.5	14.91
Greenwood, MS	8.75	58.0	15.09	Adak, AK	12.43	64.1	19.39
Monroe, LA	9.10	64.6	14.09	Olympia, WA	15.34	66.7	22.99
Muscle Shoals, AL	9.12	61.8	14.77	Astoria, OR	19.00	63.2	30.06
Jackson, MS	9.64	66.0	14.60	Annette Is., AK	19.72	59.8	32.97
Crossville, TN	10.26	63.9	16.06	Quillayute, WA	29.38	66.8	43.97

Table 4. Selected stations that were abnormally wet during Winter 1987-1988 (Total precipitation more than six inches AND percent of normal precipitation more than 150%; OR, total precipitation more than 16 inches AND no normals).

Station	Amt(in)	%Nml	Station	Amt(in)	%Nml
Kokee, Kauai, HI	64.91	224.6	McAlester, OK	10.20	162.9
Memphis NAS, TN	24.73	***	Milwaukee, WI	9.96	201.8
Honolulu, Oahu, HI	21.61	218.7	Homer, AK	9.44	153.2
Little Rock, AR (IMI)	19.93	167.3	Columbia, MO	9.28	164.9
New Orleans, LA (NEW)	18.47	***	Springfield, IL	8.56	160.0
Paducah, KY	17.84	***	Marquette, MI	8.53	159.6
Little Rock AFB, AR (LRF)	16.57	***	Tulsa, OK	8.01	165.0
Belleville/Scott AFB, IL	13.37	174.0	Moline, IL	7.28	151.8
West Plains, MO	13.17	155.1	Rockford, IL	7.02	158.2
St. Louis, MO	13.03	216.5	Wichita Falls, TX	6.61	213.8
Ft. Smith, AR	11.83	164.6	Madison, WI	6.37	176.8
Springfield, MO	11.00	175.1			

(Note: Asterisks indicate station has no normals).

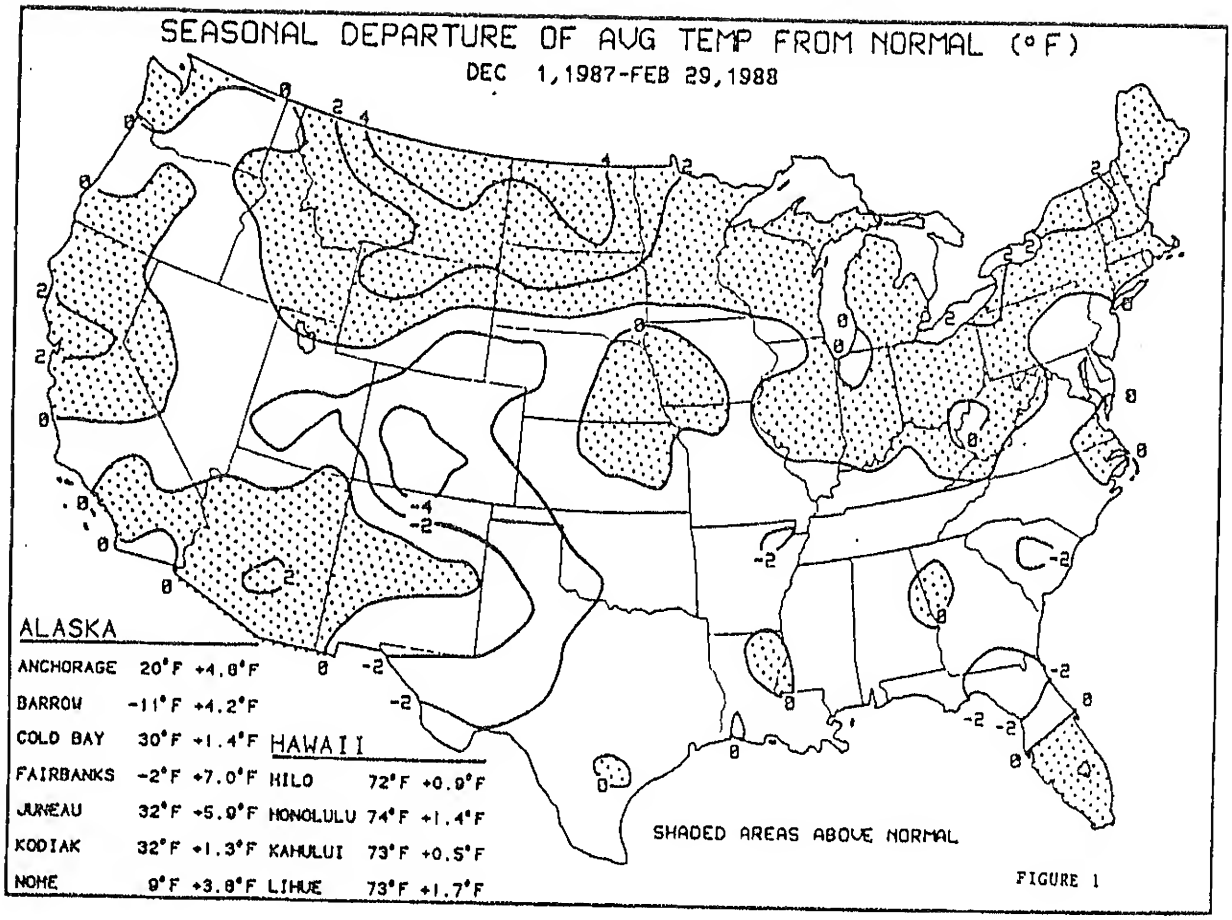


FIGURE 1

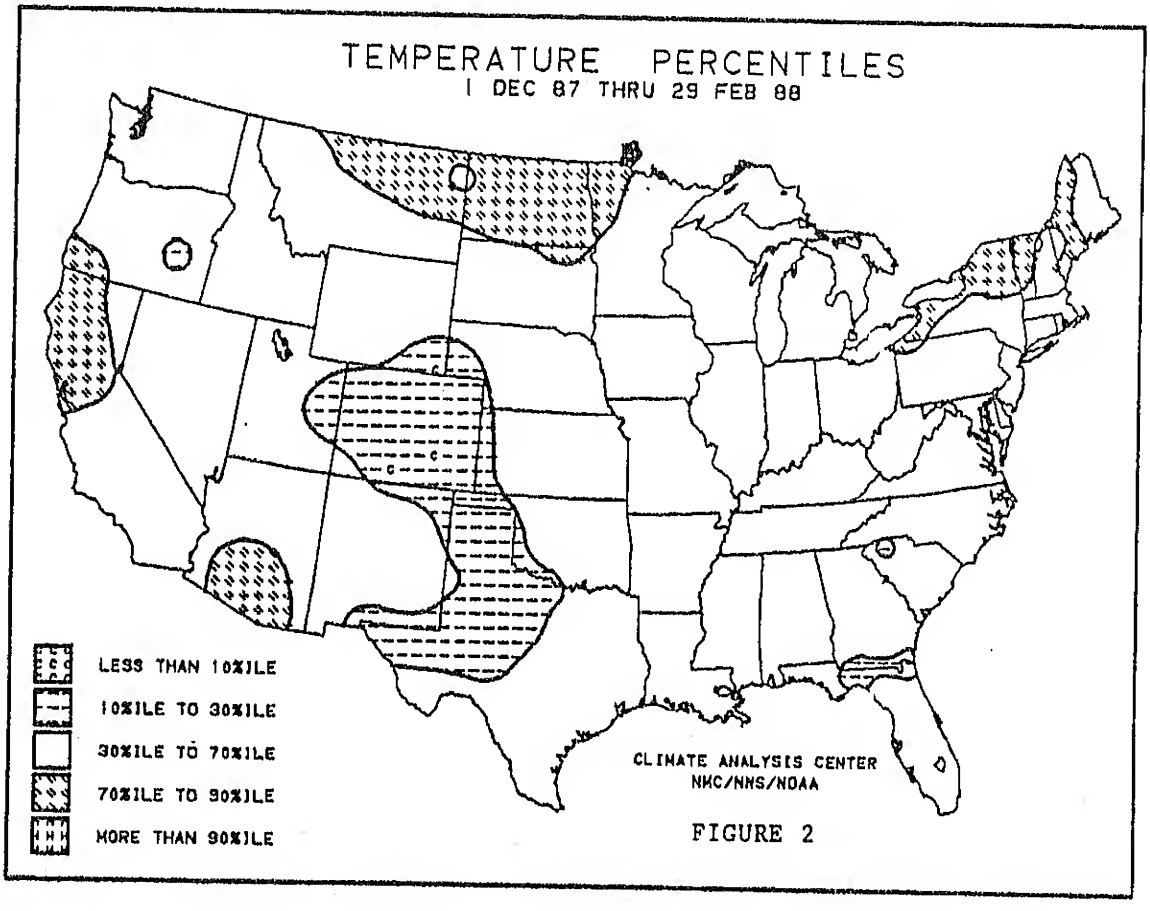


FIGURE 2

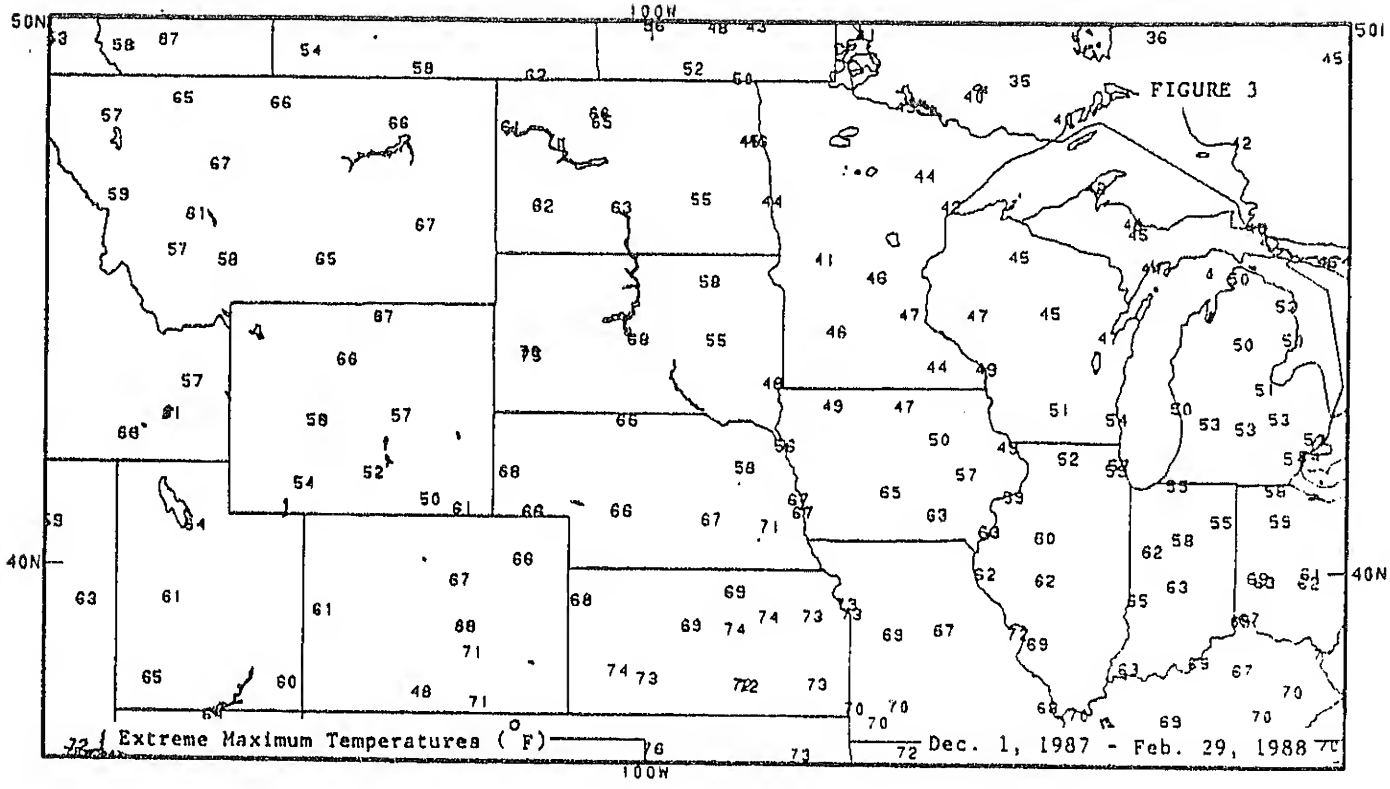


FIGURE 3

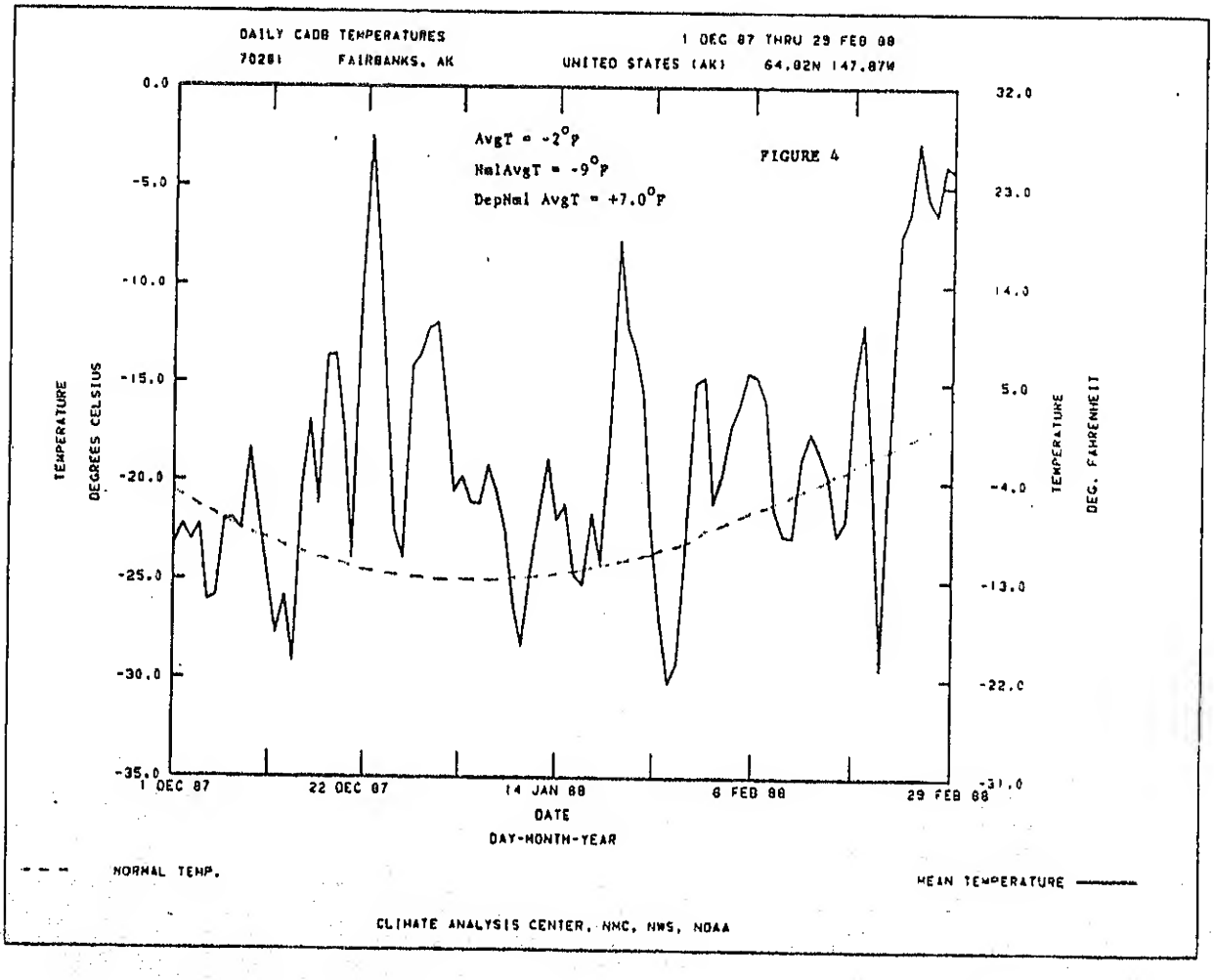


FIGURE 4

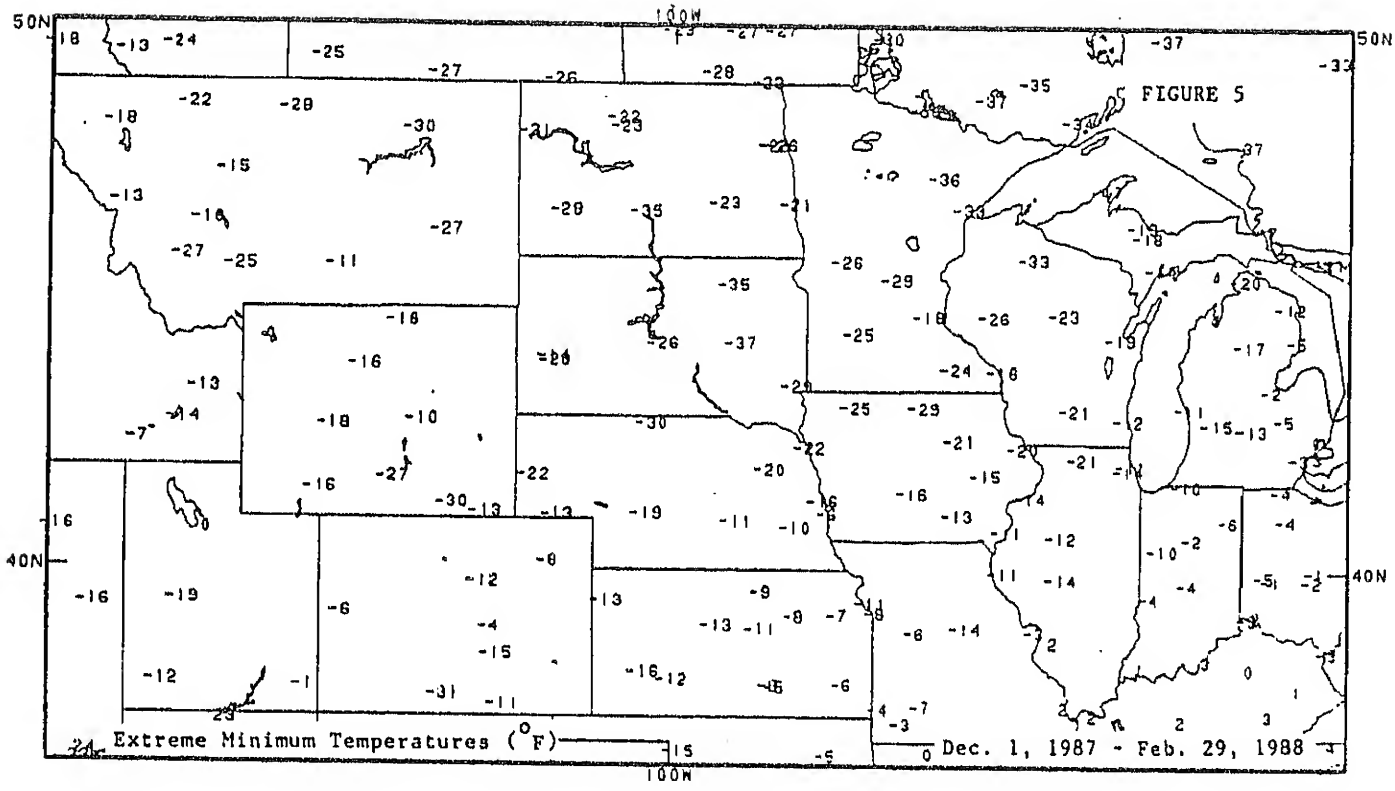


FIGURE 5

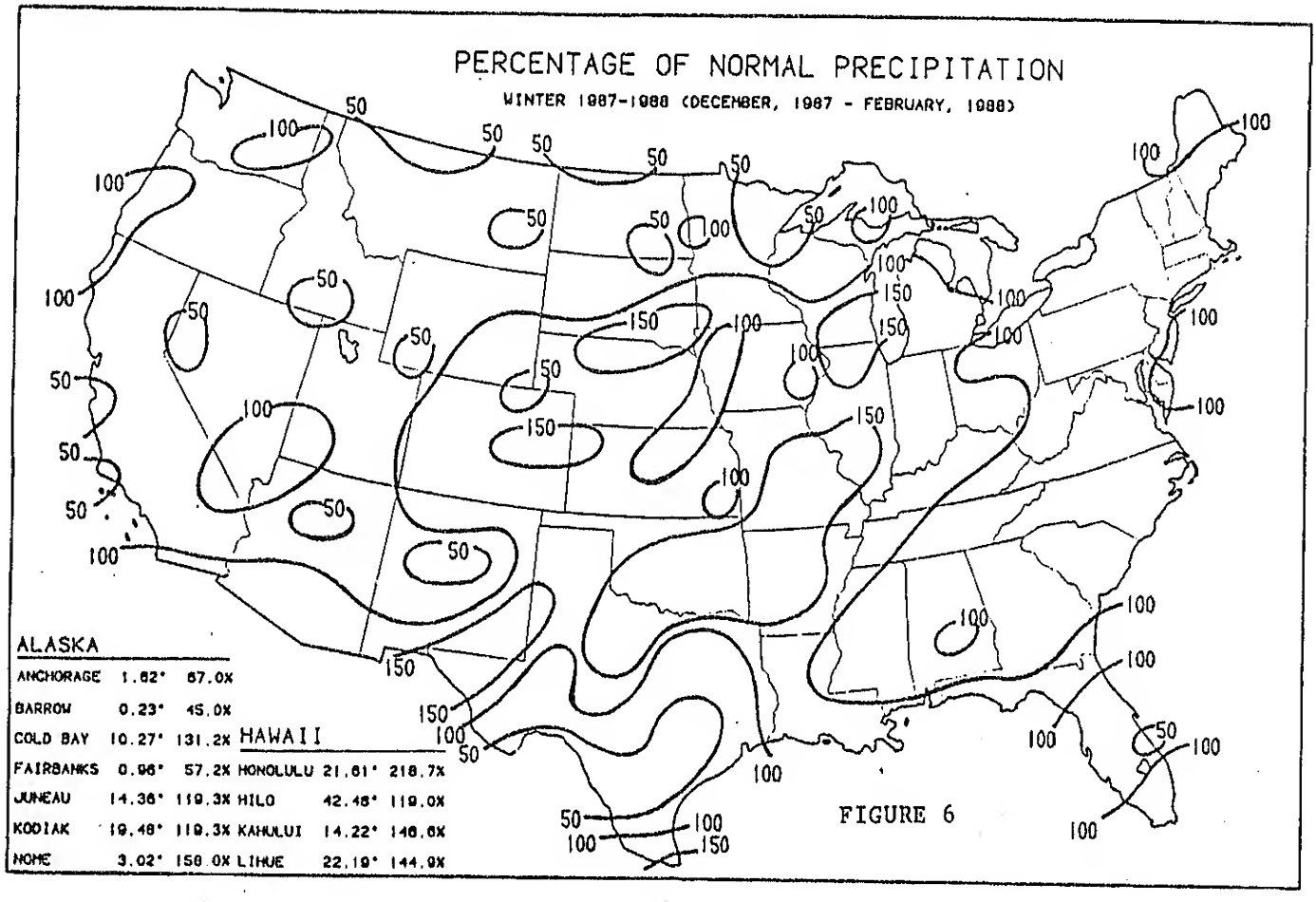


FIGURE 6

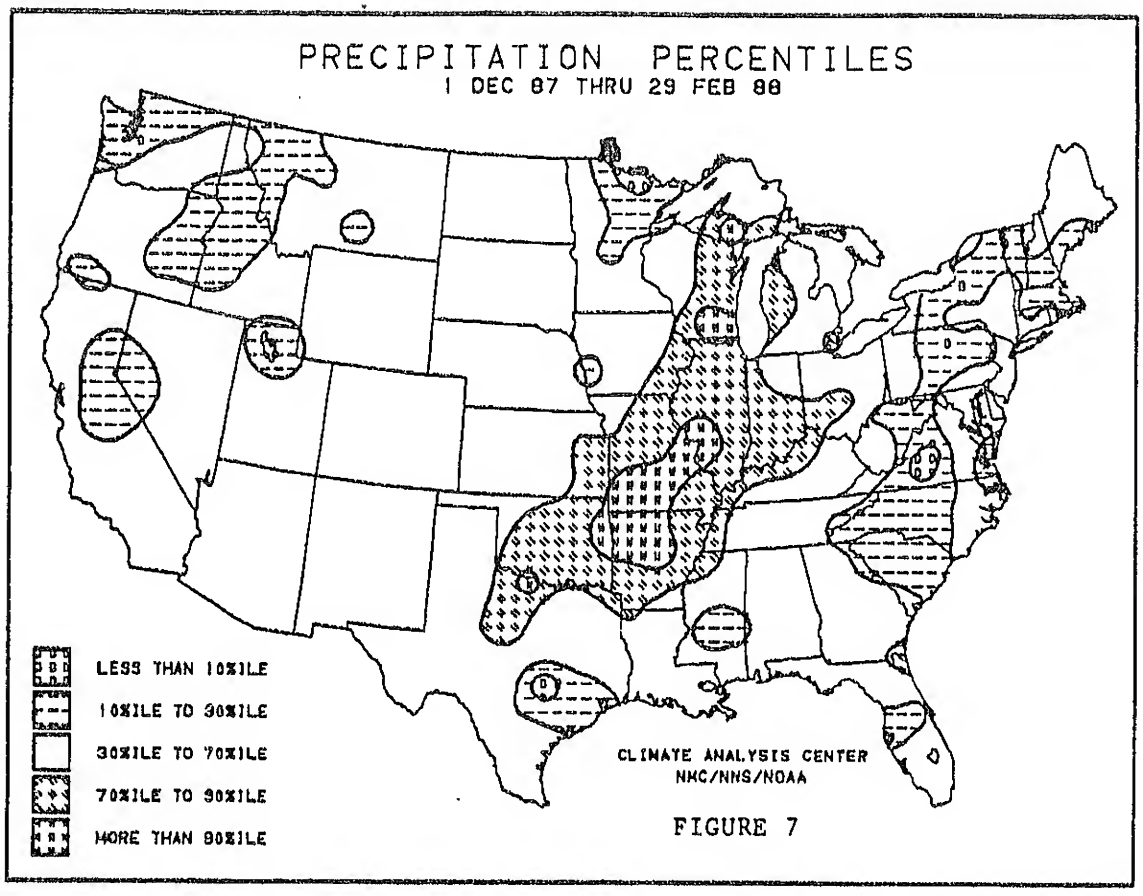


FIGURE 7

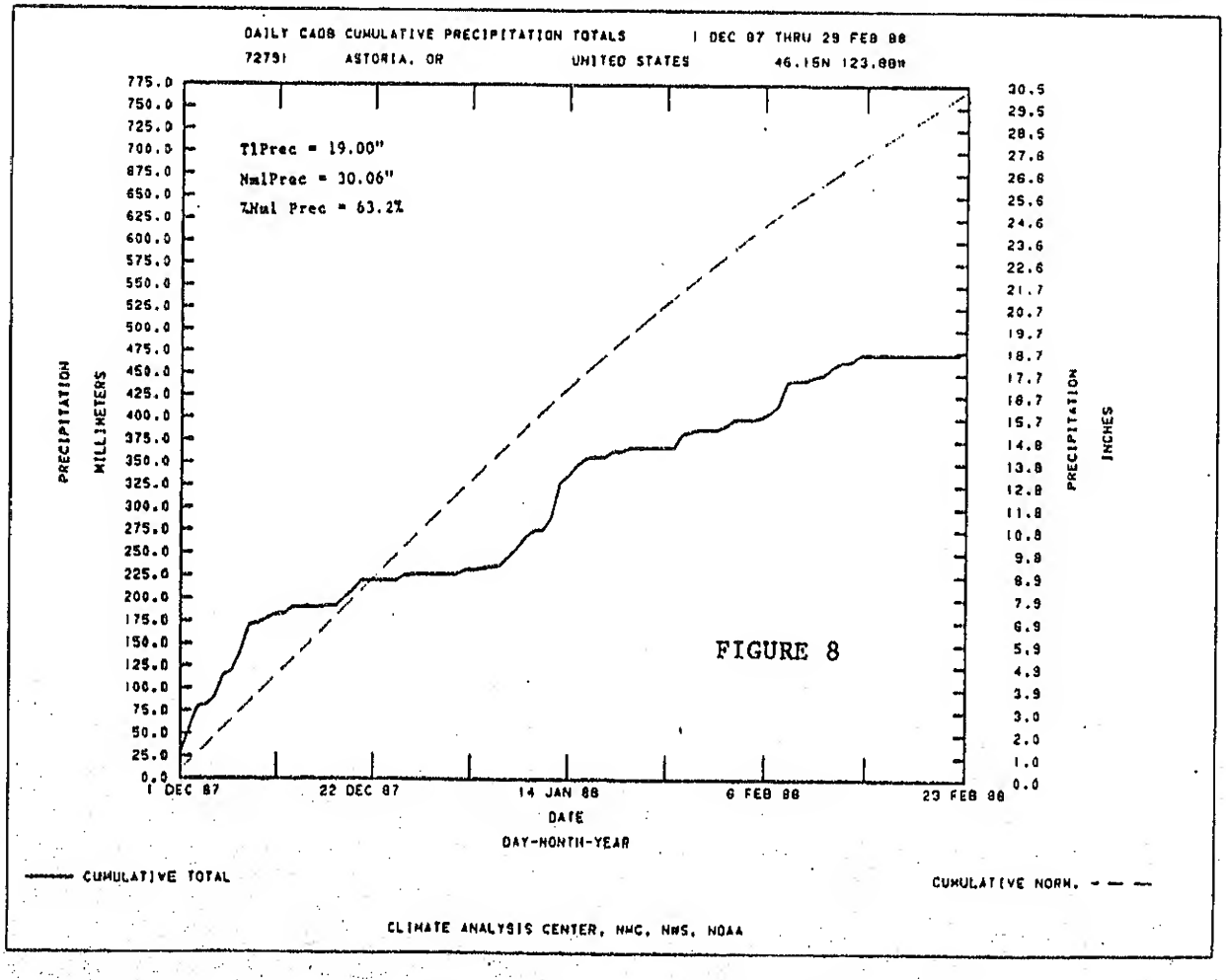
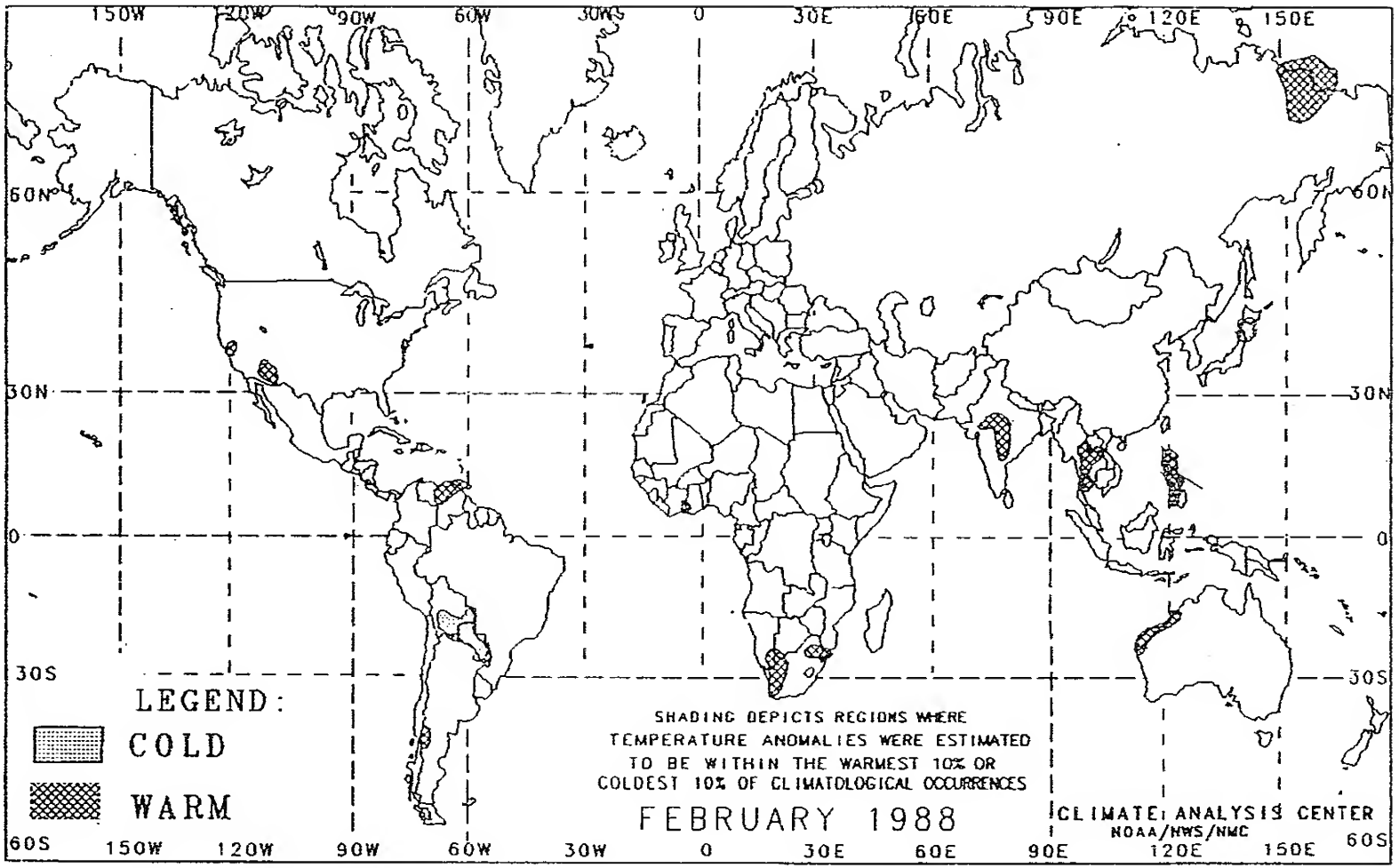


FIGURE 8

GLOBAL TEMPERATURE ANOMALIES

Monthly



The anomalies on this chart are based on approximately 2500 observing stations for which at least 26 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

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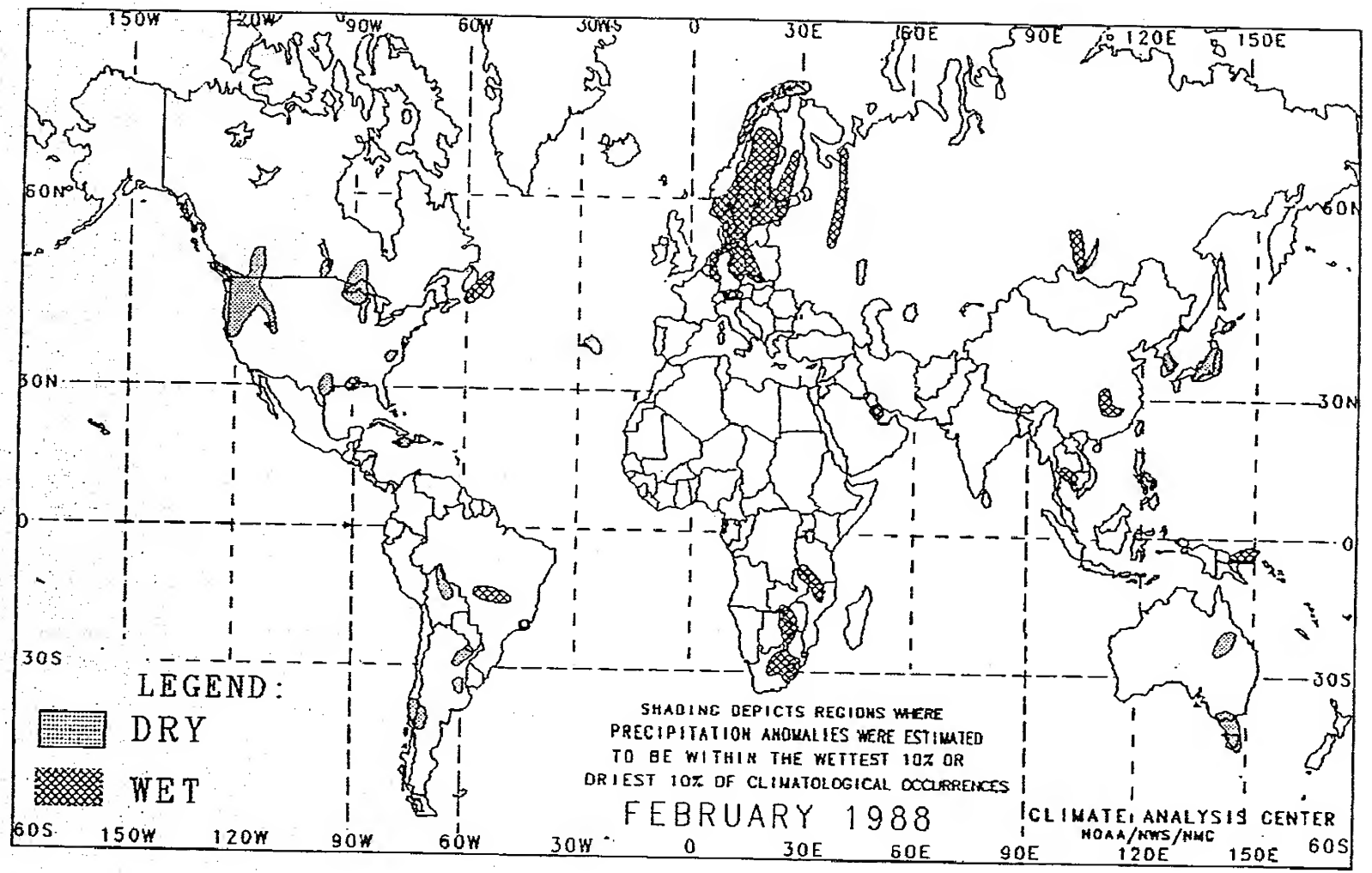
PRINCIPAL TEMPERATURE ANOMALIES - FEBRUARY 1988

REGIONS AFFECTED	TEMPERATURE AVERAGE (C)	DEPARTURE FROM NORMAL (C)	COMMENTS
NORTHERN CALIFORNIA	+12 TO +13	AROUND +2	WARM - 2 TO 4 WEEKS
SOUTHERN ARIZONA	AROUND +16	+3 TO +4	WARM - 2 TO 4 WEEKS
VENEZUELA	+28 TO +29	AROUND +2	WARM - 6 WEEKS
BOLIVIA AND PARAGUAY	+10 TO +25	-2 TO -3	VERY COOL FIRST HALF OF FEBRUARY
WEST CENTRAL ARGENTINA	+16 TO +18	+3 TO +4	WARM - 3 TO 4 WEEKS
SOUTHEASTERN IVORY COAST	AROUND +29	AROUND +2	WARM - 6 WEEKS
WESTERN SOUTH AFRICA AND SOUTHEASTERN NAMIBIA	+22 TO +28	AROUND +2	WARM - 2 TO 9 WEEKS
NORTHEASTERN SOUTH AFRICA AND SOUTHERN MOZAMBIQUE	+23 TO +28	AROUND +2	WARM - 2 TO 9 WEEKS
INDIA	+22 TO +26	+2 TO +4	WARM - 9 TO 12 WEEKS
THAILAND	+25 TO +30	AROUND +2	WARM - 2 WEEKS
NORTHEASTERN SIBERIA	-32 TO -29	+3 TO +5	VERY MILD EARLY IN FEBRUARY
NORTHERN JAPAN	-4 TO -2	AROUND -2	COLD - 4 WEEKS
PHILIPPINES	+26 TO +29	+2 TO +3	WARM - 16 WEEKS
NORTHWESTERN AUSTRALIA	+30 TO +32	AROUND +2	VERY WARM LATE IN FEBRUARY

GLOBAL PRECIPITATION ANOMALIES

Monthly



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the one month period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total one month precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

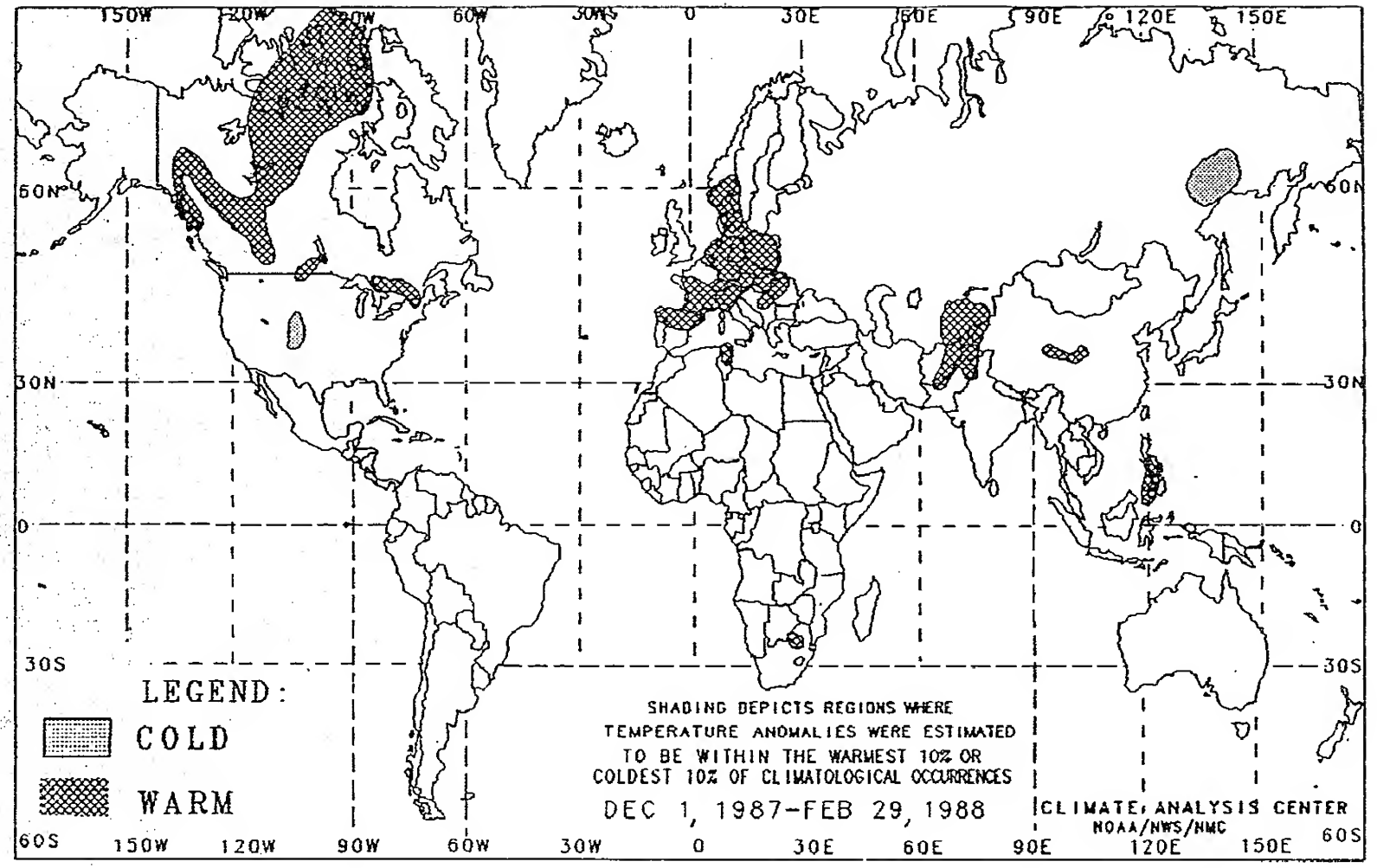
The chart shows general areas of one month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

PRINCIPAL PRECIPITATION ANOMALIES - FEBRUARY 1988

REGIONS AFFECTED	PRECIPITATION TOTAL (MM)	PERCENT OF NORMAL	COMMENTS
NORTHWESTERN UNITED STATES AND SOUTHWESTERN CANADA	2 TO 98	2 TO 46	DRY - 7 TO 25 WEEKS
SOUTHERN MANITOBA	0 TO 6	0 TO 30	DRY - 5 TO 7 WEEKS
NORTH CENTRAL UNITED STATES AND SOUTHWESTERN ONTARIO	0 TO 20	0 TO 47	DRY - 4 TO 12 WEEKS
NOVA SCOTIA AND NEWFOUNDLAND	166 TO 191	166 TO 246	HEAVY PRECIPITATION SECOND HALF OF FEBRUARY
SOUTHERN TEXAS	8 TO 36	13 TO 48	DRY - 4 TO 7 WEEKS
SOUTHEASTERN LOUISIANA	287 TO 317	200 TO 217	WET - 4 TO 6 WEEKS
CENTRAL NORTH CAROLINA	21 TO 32	19 TO 38	DRY - 4 TO 7 WEEKS
JAMAICA	0 TO 14	0 TO 20	DRY - 7 WEEKS
NORTHERN BOLIVIA	21 TO 169	31 TO 68	DRY - 7 WEEKS
CENTRAL BRAZIL	194 TO 348	174 TO 231	WET - 4 WEEKS
VICINITY OF RIO DE JANEIRO	432 TO 473	207 TO 313	WET - 6 WEEKS
NORTHEASTERN ARGENTINA	13 TO 65	12 TO 46	DRY - 5 WEEKS
EAST CENTRAL ARGENTINA	18 TO 48	21 TO 49	DRY - 6 TO 7 WEEKS
WEST CENTRAL ARGENTINA AND CENTRAL CHILE	0 TO 1	0 TO 1	DRY - 7 WEEKS
AZORES	24 TO 34	21 TO 48	DRY - 10 WEEKS
NORTHERN NORWAY	2 TO 17	2 TO 36	DRY - 6 TO 7 WEEKS
SOUTHERN SCANDINAVIA AND CENTRAL EUROPE	36 TO 292	160 TO 473	WET - 4 TO 10 WEEKS
AUSTRIA AND SWITZERLAND	198 TO 324	182 TO 212	WET - 4 TO 9 WEEKS
BAHRAIN AND SAUDI ARABIA	77 TO 170	467 TO 695	WET - 5 WEEKS
GABON	79 TO 136	39 TO 50	VERY DRY EARLY AND LATE IN FEBRUARY
MALAWI AND NORTHEASTERN ZAMBIA	183 TO 459	138 TO 245	WET - 4 TO 6 WEEKS
SOUTH AFRICA, ZIMBABWE, AND BOTSWANA	86 TO 530	181 TO 591	WET - 4 TO 6 WEEKS
NORTH CENTRAL EUROPEAN RUSSIA	42 TO 69	177 TO 202	WET - 4 WEEKS
SOUTHEASTERN EUROPEAN RUSSIA	6 TO 8	24 TO 30	DRY - 4 WEEKS
SOUTH CENTRAL SIBERIA	64 TO 74	641 TO 698	WET - 7 WEEKS
SOUTHEASTERN CHINA	53 TO 217	187 TO 240	WET - 4 WEEKS
SOUTH KOREA	1 TO 21	2 TO 42	DRY - 4 TO 7 WEEKS
HOKKAIDO, JAPAN	7 TO 16	14 TO 39	DRY - 4 TO 6 WEEKS
HONSHU, JAPAN	11 TO 47	17 TO 49	DRY - 4 TO 7 WEEKS
THAILAND	67 TO 151	250 TO 505	WET - 4 TO 6 WEEKS
PAPUA NEW GUINEA	472 TO 476	152 TO 206	VERY WET LATE IN FEBRUARY
SOUTHWESTERN QUEENSLAND	1 TO 55	2 TO 49	DRY - 4 TO 14 WEEKS
VICTORIA AND TASMANIA	6 TO 29	11 TO 48	DRY - 4 TO 6 WEEKS

GLOBAL TEMPERATURE ANOMALIES

3 Month



The anomalies on this chart are based on approximately 2500 observing stations for which at least 78 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

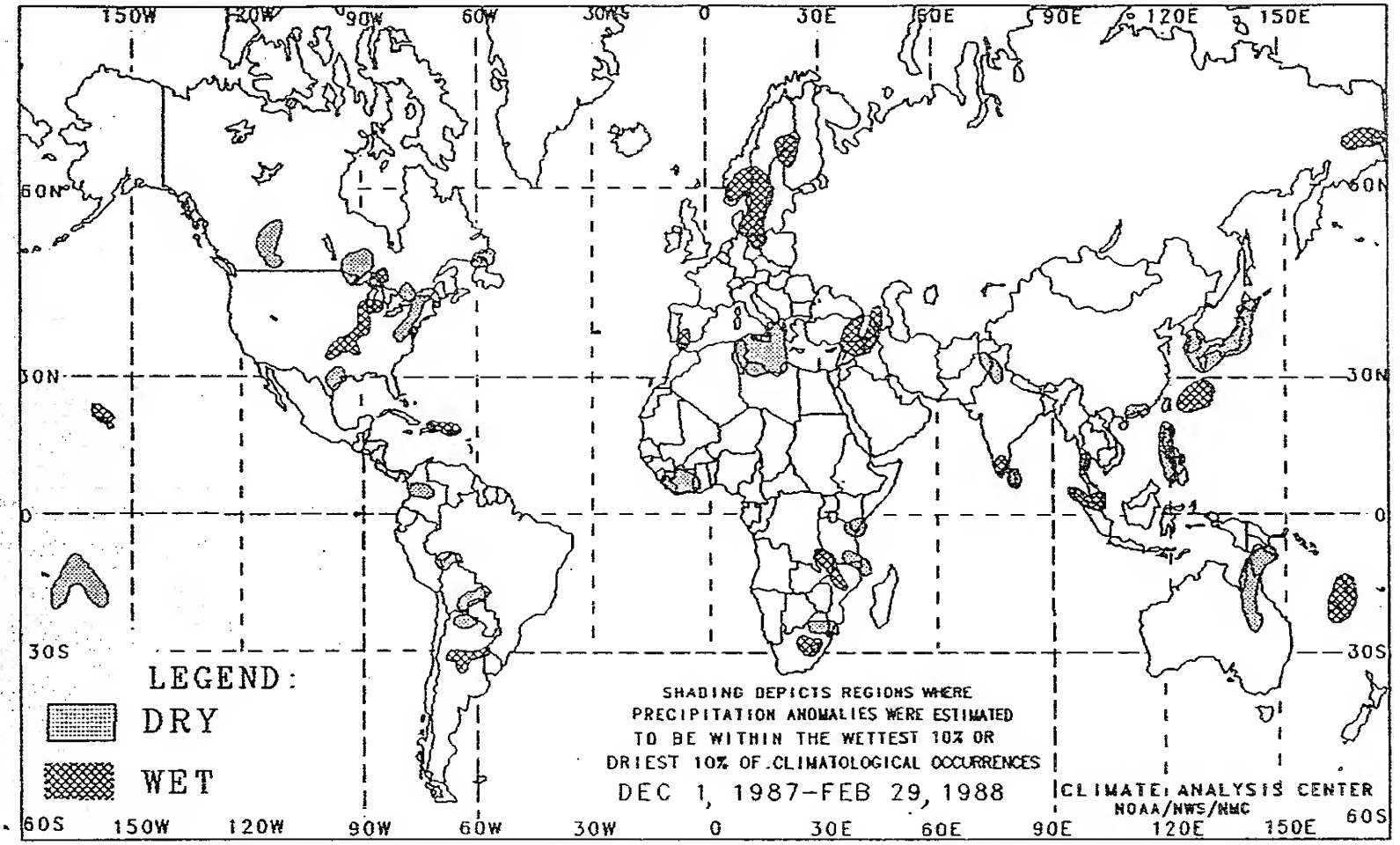
Temperature anomalies are not depicted unless the magnitude of

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining precentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of three month temperature anomalies.

GLOBAL PRECIPITATION ANOMALIES

3 Month



The anomalies on this chart are based on approximately 2500 observing stations for which at least 81 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the three month period is less than 50 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total three month precipitation exceeds 175 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of three month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

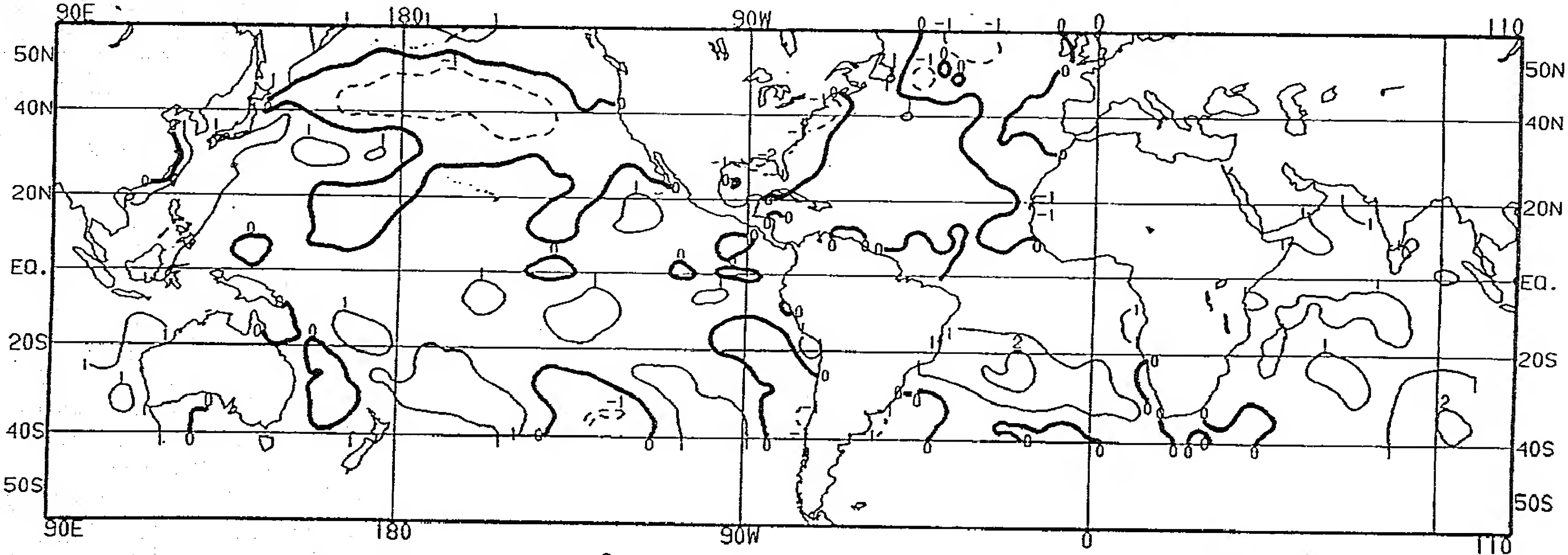
EL NINO SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC ADVISORY 03/88
issued by
The Climate Analysis Center, NMC
National Weather Service, NOAA
March 9, 1988

Equatorial winds in February showed a continued trend towards normal conditions throughout the Pacific. Positive sea surface temperature (SST) anomalies decreased sharply along the equator in all three index regions. However, SST anomalies remained greater than +0.5°C in the central Pacific region (Nino 4) and greater than normal convective activity persisted in that region. Also, sea level pressure was greater than normal at Darwin (+0.4 mb) and less than normal at Tahiti (-0.9 mb) resulting in a negative value of the Southern Oscillation Index (-0.6).

Positive outgoing longwave radiation (OLR) anomalies, indicating drier than normal conditions, prevailed over much of Australia during February, although in equatorial regions just to the north negative OLR anomalies, wetter than normal conditions, were observed. Negative OLR anomalies were also observed along the South Pacific Convergence Zone, a band of clouds and low level wind convergence extending from the equator, just west of the date line, southeastward over the South Pacific.

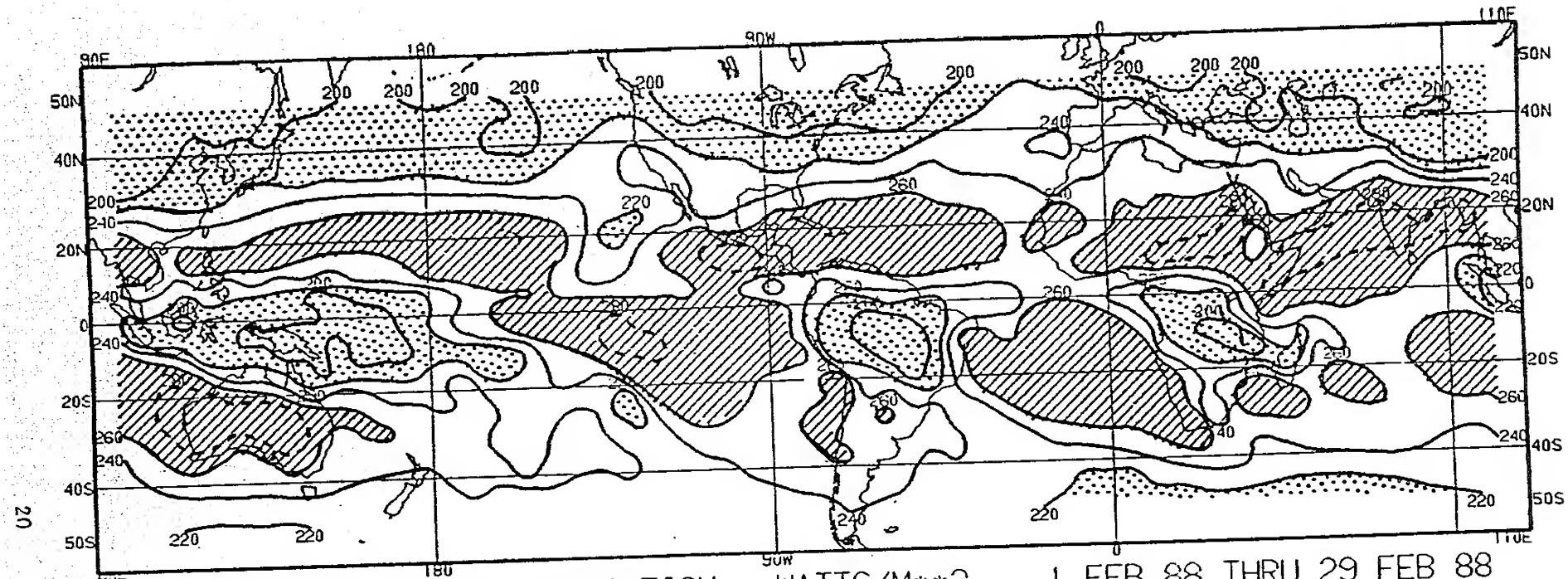
During most of 1987, upper tropospheric (200 mb) easterly anomalies were observed over much of the equatorial belt. In February 1988 easterly anomalies were virtually absent along the equator and westerly anomalies generally prevailed. The largest westerly anomalies were observed in the central and eastern Pacific accompanied by a pair of cyclonic anomaly centers, one north and one south of the equator.

Although most atmospheric and oceanic indices indicate a continued trend towards normal in the equatorial Pacific, residual positive SST anomalies in the central Pacific are continuing to support enhanced cloudiness and precipitation in that region.



Anomalous Sea Surface Temperatures (°C)

February 1988



MEAN OUTGOING LONGWAVE RADIATION - WATTS/M**2 1 FEB 88 THRU 29 FEB 88

OLR LESS THAN 220, PRECIPITATION LIKELY

OLR GREATER THAN 260, PRECIPITATION UNLIKELY

The above map depicts the mean monthly value of outgoing long wave radiation (OLR) as measured by the sensor on board the polar orbiting satellite. In tropical areas that receive primarily convective rainfall, a mean OLR value of less than 220 watt/m^2 is associated with significant monthly precipitation, whereas a value greater than 260 watt/m^2 normally indicates little or no precipitation.

Care must be used in interpreting this chart at higher latitudes, where much of the precipitation is non-convective, or in some tropical coastal or island locations, where the precipitation is primarily orographically induced. The approximate relationship between mean OLR and precipitation amount does not necessarily hold in such locations.